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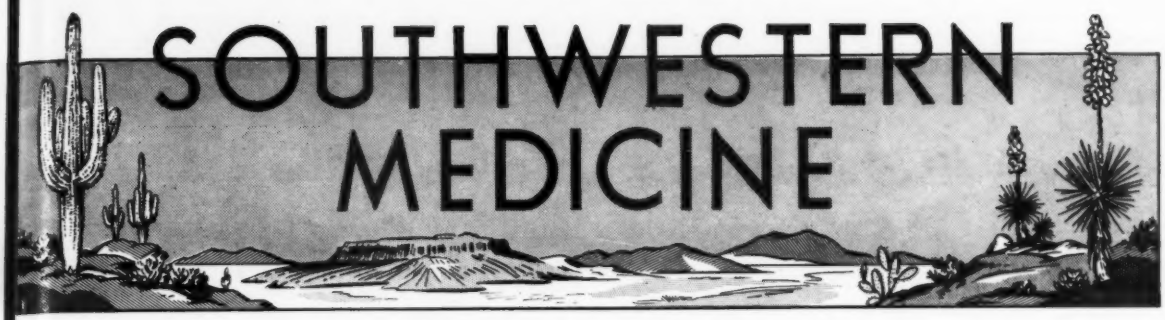

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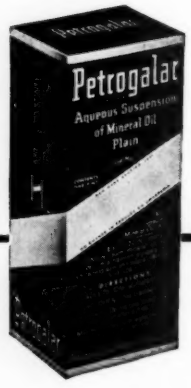

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SOUTHWESTERN MEDICINE

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NAVY'S FIGHTING SONS

One of the greatest and least publicized jobs of rehabilitation of physically defective men that this country has ever experienced is presently being done by the Medical Department of the Navy. Great numbers of young men with certain physical defects are being enlisted and, with their permission, are hospitalized early in their training period for corrective surgery. Conditions that once were bars to military service are now being cared for by Navy surgeons in hospitals set up all over the Continental United States. Thus, thousands of men will be saved for service who otherwise would have been lost. And at the same time these men will be better fitted for long and healthy lives, come peace.

Some of the more common correctible surgical conditions that are being cared for are varicocele, hydrocele, chronic appendicitis, hernia, chronic tonsillitis, deviated septum, pterygium. The far-sightedness of the Navy in the sponsoring of this program of rehabilitation will have only good results. It gives the sea-going service a longer reach into the man-power barrel, and when these sons of the Navy blue come home again they will be in prime condition to take their parts in the tasks of post-war America. The project is sensible, sound and well executed. The Navy is rendering a great service to America's young men, her fighting sons.

FOR THE NEW YEAR

This time a year ago black clouds of disaster were rolling over this land of ours. None knew where he might be in the days to come. Many of our brothers were in the Army or Navy, and others were to go in the months to come. Some could not realize, in the stunned existence of the first few weeks, that terrible danger had fallen upon America. Others, alarmed and angered, gave up all they had laboriously built to go to the front line of resistance against the hated enemy.

So for the past year there has been training and preparation for the final great offensive actions against the enemy. Too, delaying defensive operations have been carried out all over the world. Some of our Southwestern colleagues have fallen in these battles. Many more, scattered over the world, will die for America, for you and me, before the day of peace comes. Now, as the time for America's great battles draws near, and the dawn's early light seems closer, say a prayer in your hearts this year's end that our friends and colleagues come safely home with victory. And resolve anew to keep the home fires burning for those men now gone from their beloved Southwest. They will need you when they come marching home, even as you need them now.

THE LITTLE HELPERS

When a house catches fire you'll often find the neighborhood scalawags rushing in to heave the family chinaware out of the bedroom windows.

Presently a group called "The New York Physicians Forum" gallops up to the war scene with loud shouts about the alleged failure of the Procurement and Assignment service. This is the Boas-Atkinson sponsored little wilful body, with a new and fancy name. It is the same old story—a few objectors gather under a banner with an all-claiming device, and get attention all out of proportion to their numbers and actual prestige.

It is true that the Procurement and Assignment service has not attained perfection, but it

would be a hell of a note to repudiate and abolish this service on the say so of a small handful of self-anointed guardians of the public weal. On the contrary why don't these fancy-named panacea peddlers join the great number of earnest, patriotic physicians who have labored without thanks and without pay to solve the many-sided problem of medical care for industry, the civilian population and the armed services? Instead of trying to destroy, why not now help to create, and cease the belligerent tone of their name-calling? Surely, not all the thousands of doctors working with the P. and A. are fork-tailed devils.

Tumors of the Testis

MERRIWEATHER L. DAY, M. D.
Phoenix, Arizona

TUMORS of the testis are relatively rare. Hinman[1] has made a thorough statistical study of the subject and states that they comprise 0.58 per cent, or approximately one in every 200, of all malignant tumors in men. His study further shows that approximately one in every 1,500 male admissions in general hospitals is for tumor of the testis. To January, 1928, only 102 cases had been seen in the Mayo Clinic.

Either testis may be affected with approximate equal frequency and over twenty-four instances of bilateral involvement, mostly in cryptorchids, have been reported.

Undescended testes are more prone to develop malignancies than the normally placed gland, but this tendency has probably been over estimated. At any rate it is not of sufficient frequency that one should advise the removal of an intro-abdominal or inguinal testis on the basis that it may subsequently become malignant. The exact frequency is not certain, but Hinmon collected a series of 728 testicular tumors variously reported in which 11.2 per cent were in undescended testes. The inguinal testis has a greater tendency to become malignant than the intra-abdominal testis, possibly because it is more subject to trauma, pressure, and irritation, or possibly because inguinal retention is more frequent than abdominal. All ages are affected, however, the greatest frequency for teratoma is from 20-30 years and for seminoma, from 30-40 years. Mixed tumors are usually present in children, but they may also have teratoma.

ORIGIN AND CLASSIFICATION

There are three main sources of origin for tumors of the testis:

1. They may arise from totipotent sex cells which may be misplaced primordial germ cells capable of reproducing any tissue within the body.

2. They may arise from a fetal rest or isolated blastomere.

3. They may arise from an adult tissue cell of the testis.

Ferguson's[2] classification of these tumors has clarified the entire picture of the disease and has made possible the differential diagnosis as to their degree of malignancy. He classified these tumors into five groups, with an increasing degree of malignancy in each succeeding group.

1. Adult cystic teratoma. This tumor is composed of many different types of relatively well differentiated tissue such as bone, cartilage, muscle, etc. It may remain benign for years before undergoing malignant changes. Metastases occur largely by lymphatics and direct extension, but may invade the blood stream late.

2. Seminoma. This tumor grows rapidly and becomes larger than any of the testicular neoplasms.

3. Embryonal carcinoma with lymphoid stroma attains medium size and is a rather soft, smooth and elastic tumor.

4. Embryonal adeno-carcinoma. This is one of the most malignant growths of all cancers. It frequently metastasizes before it has reached any appreciable size.

5. Chorionepithelioma. This is one of the least common testicular tumors. It originates in the rete testis and may metastasize before there is any gross enlargement of the testes.

All of the latter four tumors metastasize widely by both blood stream and lymphatics.

DIAGNOSIS

Early recognition of malignancies of the testes is the only hope of satisfactory treatment. This is of such great importance that suspicious

swellings should be thoroughly investigated immediately, precluding an observation period during which time metastases may occur.

The history of trauma preceding the development of testicular tumors is frequent enough to cause every physician and surgeon to regard testicular injuries seriously and to observe the patient until the gland has returned to its normal size. Frequently such injuries are seen by physicians treating industrial and insurance cases. The industrial commission or the insurance company is usually anxious to settle the case as soon as possible and due to this fact, the patient is often discharged when the period of pain has ended, little regard being given to the testicular enlargement.

There are no classical symptoms of an early tumor of the testis. The patient at first observes a gradual painless enlargement which is often accompanied by a sense of weight or fullness in the scrotum. Upon palpation, it is often found that the testis has lost its normal sensibility. If metastases have occurred, the patient usually complains of symptoms relative to the location of the secondary growth. Since the lungs and retro-peritoneal lymph nodes are the earliest recipient of metastases, the patient is likely to complain of pulmonary or abdominal symptoms.

Grossly the testis retains its normal ovoid shape, the enlargement is symmetrical and it is usually freely moveable within the scrotum. The inguinal lymph nodes are usually not involved unless the scrotal skin has been affected because the lymphatic drainage of the scrotum is different from that of the testis. I have, however, observed one case of embryonal carcinoma, in which the inguinal nodes were affected without apparent involvement of the scrotal skin. The retro-peritoneal glands probably were also involved but there were no pulmonary metastasis. The hormone test was negative, but later became positive. This patient lived comfortably for four years following orchidectomy, resection of the inguinal nodes and radiation therapy. If he had reported for more adequate radiation as was advised, it is believed that his life could have been extended considerably longer.

The diagnosis of tumor of the testis is largely a matter of exclusion and in the differential diagnosis, one should consider the following conditions:

1. Hydrocele. Most all hydroceles will transmit light. Occasionally those with thick fibrotic sacs or in which hemorrhage has occurred (hematocele) will not.

2. Spermatocele. This is a cyst of the epididymis and is usually small enough so that the testis can be palpated as being normal in size and distinct from the cystic swelling.

3. Gumma. This condition closely resembles a true testicular neoplasm. The Wasserman is usually positive and it rapidly responds to anti-luetic therapy. It should be remembered, however, that a tumor of the testis may occur in one suffering from syphilis.

4. Epididymitis. The epididymis alone is usually involved and can be palpated separately from the testis. The condition is usually acute, the scrotal contents are very tender, and as a rule there is a febrile reaction and an elevation of the white blood count. Tuberculous epididymitis which is usually chronic does not invade the testis until late, at which time there are likely to be purulent draining scrotal sinuses.

5. Scrotal hernia. This may be recognized by the history and the usual physical signs for diagnosing inguinal hernia.

6. Mumps. This is an acute orchitis and should be easily excluded.

Roentgen investigation for evidence of metastases is not to be overlooked. This particularly includes x-ray of the chest and according to Fetter[3] an intravenous pyelogram should be done. He states that this will often reveal evidence of retro-peritoneal metastases by displacement of either kidney or ureter, or evidence of obstruction along the course of the ureter.

The finding of gonadotropic hormone (Prolan-A) in the urine of patients with testicular tumor has been of much help in determining the type of tumor, the extent of the disease and the effect of treatment. The test is not infallable as other conditions, such as gynecomastia, cause large quantities of the hormone to appear in the urine. Furthermore, the less malignant testicular tumors, such as the adult teratoma, produce very little or no hormone. At any rate, the test, when done correctly may be of considerable diagnostic and prognostic value.

When the diagnosis cannot be otherwise established, one should not withhold careful orchidectomy.

TREATMENT

It is obvious that a new growth presenting

such difficulties in proper pathological classification as do testicular tumors, would also present divergent views as to proper treatment. However, in the past several years, much constructive work has been done by both the pathologist and the surgeon so that the controversy is becoming more settled and better results are being obtained from treatment. The prognosis of this disease has been radically altered since the advent of radiation therapy[4]. Statistics show that formerly approxmately 85% of these patients died despite the best surgical means available. Dean[4] has reported that of the patient who were seen at New York Memorial Hospital in an operable condition 85% have been free of signs or symptoms of the disease for from five to thirteen years, following radiation. Teratoma testis, or the highly malignant embryonal tumors respond best to radiation. The following three types of treatment are generally considered most efficient depending upon the presence or absence of metastases:

1. Pre-operative radiation followed by orchidectomy in four to six weeks and subsequent post-operative radiation.
2. Initial orchidectomy followed by post-operative radiation.
3. Radiation alone.

Radiation alone is reserved for those where a correct diagnosis had been made and metastases have been demonstrated. This type of therapy is obviously only pallative but the favorable response and elongation of life which occurs in some of these individuals with radiosensitive tumors is occasionally quite striking.

If demonstrable metastases are not present, one may choose ether pre-operative radiation, orchidectomy and post-operative radiation; or orchidectomy followed by adequate radiation. The principal arguments against preliminary radiation are that repeated manipulations of the testis during the treatment predispose to metastasis; sterility is frequently produced in the opposite testis, and when the tumor is finally removed its cellular composition has been so altered that it is even more difficult to make a correct pathological diagnosis.

The procedure of careful orchidectomy followed by adequate radiation probably has the greatest number of adherents. Certainly it would seem that if no metastases were present that this would be the treatment of choice. In performing orchidectomy for tumor under any condition, however, great care should be taken not to manipulate, or squeeze the testis which predisposes to cell migration. The operation is best done by making an incision over the lower portion of the inguinal canal and carefully ligating the entire cord. The incision is then carried down into the scrotum and the testis is removed. The tunica albuginea should never be punctured as cell transplants and local recurrence is very apt to occur.

As regards the technique and dosage of radiation to be used, in a given case, it is advised that the clinician, the pathologist, and radiologist should consult freely in order to secure the best results. Dean[4] ha sshown that when giving radiation therapy, better results may be obtained and reactions will be considerably less when the patient is in good general condition. Particularly should anemia be treated by repeated transfusions of whole blood.

Hinman has developed a masterful surgical procedure directed towards removing the retroperitoneal lymphatic chain on the affected side. He advises it for the adult type of teratoma which is relatively radio-resistant. The principal criticism of this procedure is that it is accompanied by a high mortality rate, the disease may have spread beyond the abdominal lymphatics, and it has been shown that the epigastric lymphatics anastamose freely so that the glands of the opposite side are likely to be involved. This procedure has few proponents today.

Any patient who has had a tumor of the testis should be thoroughly impressed with the necessity of continued observation consisting of regular physical, roentgenographic and hormone checkup for metastases.

CONCLUSION

1. An attempt has been made to present a brief, practical discussion of tumors of the testis.
2. The necessity for early diagnosis and treatment is stressed.
3. Adequate radiation therapy is of great importance in the treatment of these malignancies.

Todd's Grumow Memorial Clinic.

BIBLIOGRAPHY

1. Hinman, Frank: Principles and Practice of Urology, 1935, p. 762-764.
2. Keyes, E. L. and Ferguson, R. S.: Urology. 1936. p. 440-462
3. Fetter T. R.: The management of tumor of the testicle: study of 42 cases. Pennsylvania M. J., 44:1240-1250, July 1941
4. Dean, A. L.: Use of radium and roentgen rays in the management of cancers of the genitourinary organs. New England J. Med., 206:1078-1088, May 26, 1932.

Simplified Tourniquet For Venipuncture

WILLIAM M. HAYES, M. D.
Hamilton, Ohio

VARIOUS types of tourniquets are in use. Some of them are simple, while others are complicated, and run from the non-expensive to the expensive.

The tourniquet that is to be described herein has been used in venipuncture on hundreds of punctures, where blood is taken for seriological examinations. In one of the larger industries, this is a part of the medical examination upon being employed. This tourniquet is rapidly applied and time saving where a large number of men are being examined, and it is also instantaneously released.

The tourniquet is an ordinary piece of rubber tubing. The one that is being used is 44 inches in length, ½ inch in diameter, with a ¼ inch bore and very resilient. The tubing is folded upon itself and passed around the upper arm —right or left. The upper, or loose ends, are passed within the loop where the tubing is folded upon itself. The two arms, or upper portions of the tubing are drawn up tightly against the loop and then pulled backward and downward on the loop and held in this position (Fig. 1— A and B). The arms of the tubing which encircle the upper arm should always be as near side by side (parallel) as possible. This gives a double constricting force and causes the veins in the forearm to stand out in bold relief, due to their distension, making them easy for puncture.

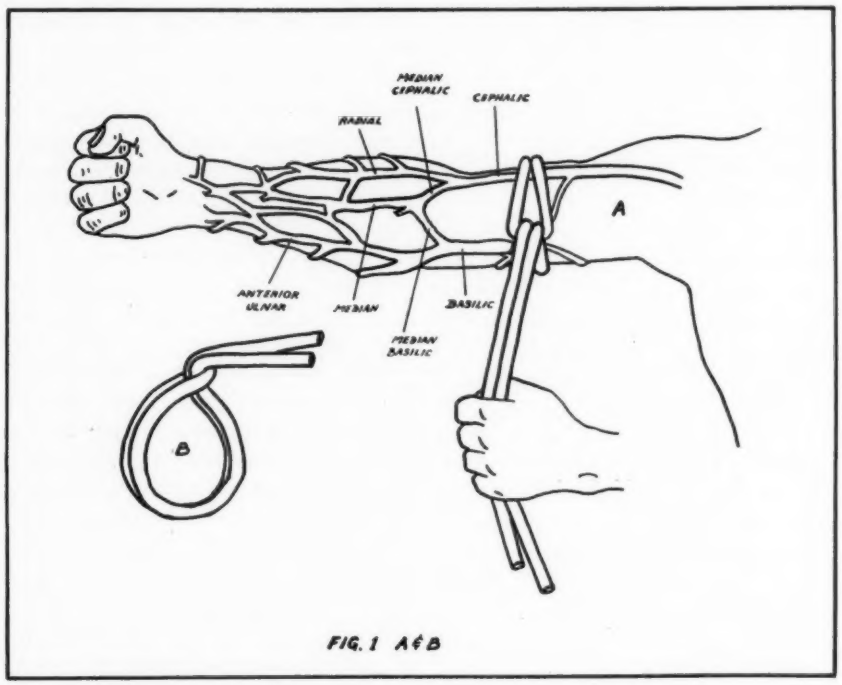

FIG. 1 A & B

The tourniquet is held in place either by an assistant or by the one who is being punctured.

The one assisting, that is, the one holding the tourniquet, when told to release or remove his grasp, after sufficient blood has been drawn into the syringe and before the needle is withdrawn from the vein, the tourniquet releases itself spontaneously; it snaps off due to its resiliency.

When you do not have an assistant, the one making the puncture applies the tourniquet and the one being punctured holds the tourniquet in place. It has previously been explained what you want done. In the event that the one being punctured freezes to the tourniquet after being told to release it, you can knock his grasp from the tourniquet with your free hand, or if syn-

cope takes place during the puncture the grasp will relax and here again the tourniquet snaps off automatically.

It is to be understood that the field where the puncture is made has been prepared and the one making the puncture has carried out the proper technique.

207 Ross Ave.

Some Considerations of Water Balance in Health and Disease

CHAS. N. PLOUSSARD, M. D.
Phoenix, Arizona

THIS is a subject which we take more or less for granted, realizing its importance but doing very little about it other than ordering glucose and saline in a haphazard way to be administered to our patients with no attention to the necessary intake and output.

In reviewing the literature of this subject a few names stand out, such as Hugh Cabot, F. A. Collar, and W. G. Maddock, and there are many others who have contributed valuable material to this subject.

Modern medicine has given us ways and means of supplying the sick patient with water and food by channels other than the gastro-intestinal tract. In health the adjustment between the intake and output of fluids is such that a fairly constant proportion is maintained in the body. This is approximately 70% of the total body weight. Water is not only supplied by fluid drunk but also by solid food consumed, over half of which is water.

TABLE 1—Components of Water Exchange

Available Water	Excreted Water
1. Fluids Drunk	1. Water of urine
2. Food: diet or body substance	2. Water of Stool
A. Water content	3 Water vapor
B. Water of oxidation	

Water from food comes from two sources: (1) its water content. (2) water formed by oxidation of the protein fats and carbohydrates. From these two sources approximately 1000 to 1500 cc. of water leaves the body chiefly by two physiological functions: (1) the excretion of waste materials by the kidneys. (2) the dissipation of body heat. A small amount, however, leaves the body through the stool. There are daily from 7 to 10 liters of fluid—saliva, gastric juice, pancreatic juice, succus entericus and bile poured into the upper gastric intestional tract, with only the loss of approximately 150 cc. in the stool. This demonstrates body economy.

The loss of water through temperature control is a continuous process. It is shown that an ordinary person without visual evidence of sweating will lose in comfortable surroundings from 1000 to 1500 cc. of water daily. When profuse diaphoresis occurs, large amounts of water are lost in this way, up to several liters daily.

This vaporizing process, in contrast to water lost through the kidney, is little affected by the water available, but the body takes what it needs. This is demonstrated by the fact that in hot, sultry weather, enormous amounts of water is taken into the body, sweating is profuse, the urine remains concentrated and scanty.

If skin vaporizing is not necessary the urinary output increases. If vaporization is necessary to keep internal body temperature within normal limits with use of body fluids, you can see that without these fluids dehydration and death may ensue. In other words, water for vaporization takes priority rights. However, the normal amount of solids with a minimal amount of water, thus concentrating the urine.

In health, with the usual eating and drinking, the balance between the intake and output is largely maintained by the kidneys. A good urine output indicates a sufficient supply of water and a small amount of high specific gravity urine indicates insufficient available water.

How important in surgery then is a thorough understanding of water balance when the patient is unable to take food and drink by mouth, particularly when the kind of solutions and the amounts introduced into the body with their unmeasured loss is unknown.

TABLE 2—Blood Loss During Operations in c.c.

Hemorrhoidectomy	8
Appendectomy	14
Repair inguinal hernia	51
Cholecystectomy	51
Excision thyroglossal cyst	174
Exploratory, kidney	208
Partial gastrectomy	274
Repair ventral hernia	306
Excision retroperitoneal teratoma	546
Radical mastectomy	1,272

We all know that attending major surgical procedures, a certain amount of dehydration occurs in the majority of patients. These loss-

Read before the Fifty-first Annual Meeting of the Arizona State Medical Association, May 25-29, 1942, Prescott, Arizona.

es may be considered under the following headings:

I. DEHYDRATION PRODUCED BY OPERATIONS: We know that the majority of patients lose body fluids when undergoing major operations. A group of eighteen surgical patients showed a total loss averaging about one liter by blood, vomitus, urine and vaporization.

Studies recently by Pilcher and Sheard of the Mayo Clinic, of a series of 55 transurethral prostatic resections showed a blood loss of more than 600 cc. in 33% of the cases and an average of 479 cc. for the entire group. With an improved technique, a second series of 55 cases showed an average blood loss of 291 cc.

On one patient radical breast surgery showed a loss of 1272 cc. The patient perspired profusely in the operating room and after the end of her four hour post-operative period, she had a fluid loss of 2500 cc. How necessary then it becomes to administer fluid to patients during and following time consuming operations? Loss of water by sweating can be reduced. It is a common error following surgery for the patient to be wrapped in blankets causing profuse diaphoresis and the unnecessary loss of life giving body fluids.

TABLE 3—The Minimum Amount of Water Required to Excrete 35 gm. Waste Materials

Status of Kidney	Maximum Concentrating ability: Specific Gravity	Water Needed c.c.
Normal	1.032-1.029	473
Diseased	1.028-1.025	595
	1.024-1.020	605
	1.019-1.015	850
	1.014-1.010	1,439

II. DAILY WATER LOSSES OF SURGICAL PATIENTS: Some patients can not take water by mouth following surgery, and some are not permitted to do so, so it becomes necessary to supply water to the body by other means. To understand the quantitaive needs, a careful study is necessary. The data shows that under usual comfortable conditions without sweating, the average adult patient during convalescence, vaporized from 1000 to 1500 cc. of water daily.

With fever and complications producing toxemia, the water by vaporization sometimes reaches more than two liters a day. This amount does not include loss by vomiting, stool or urine. For seriously ill, surgical patients with sepsis, the minimum daily output of urine should be 1500 cc. with average specific gravity. The kidneys in excreting this amount of urine will remove from the body about 35 gm. of waste materials daily. This of course varies with the specific gravity of the urine and in cases of decreased kidney, more water following surgery is necessary.

More fluids are lost by vomiting, bleeding, drainage from biliary and intestinal fistulae, diarrhea and sometimes serum loss from inflamed surfaces than was ever thought possible. The nurses in charting should always measure as soon as possible, the amount of fluid losses from these sources. When administering water parenterally to a patient there should be some thought in deciding the amount of fluids to give. (see table 4)

TABLE 4—Daily Water Requirements

	Non-Septic Patient	Septic Patient
1. Water for vaporization	1,500	2,000
2. Water for urine	1,000	1,500
3. Abnormal losses, vomitus, et cetera		
Total	2,500	3,500

In going over this table the losses are abnormally high and the fluid intake in those cases should be double.

The surgeon who is quick to reconize the sign of dehydration in patients seen for the first time may wholly overlook that matter of fluids in one he has seen every day and his patient loses enormous amounts of water before his very eyes.

The diminished amount of urine is too often attributed to the reflex and toxic suppression of the kidney where as the real cause is insufficient water, and in cases of low urinary output, no other condition should be considered until the factor of dehydration is eliminated.

III. WATER BALANCE IN DEHYDRATION. Other than the two previously mentioned conditions the dehydrated patient brings a problem in water balance in addition to the foregoing individual type of patient. There is insufficient water to maintain body fluids at their normal level, therefore an additional amount is necessary to restore what has previously been lost. We have no quantitative test for dehydration, but certain signs are present such as a dry hot skin, sunken eyes, a dry tongue, a slight fever and a diminished output of concentrated urine which is insufficient to excrete the necessary waste products and an increasing NPN determination accompanies dehydration.

It is estimated that approximately 6% of the body weight that was originally attributed to body fluids has been lost. This 6% figure can be

used in determining the amount of fluids necessary in the dehydrated patient (Table 5).

TABLE 5—Fluid Requirements of a Dehydrated Patient Weighing 60 kg.

	c.c.
1. Water for vaporization	2,000
2. Water for urine	1,500
3. Abnormal losses, if any, during the 24 hours	?
4. Fluid for hydration, 6% of 60 kg.	3,600
	7,100

Referring to the table this 7,000 cc. fluid seems quite a lot, but many times it is often necessary to give much larger amounts of water before the proper output is re-established.

Let me call your attention to the point that in Table 5 water is listed for vaporization and for urine, but fluid is listed for hydration. As you know water alone will not replace the fluid lost by vomiting or diarrhea since considerable amount of salt has been lost and must be replaced if water is to be retained in the tissue. Often in cases of prostatism, dehydration results because the patient stops drinking because of the difficulty in voiding. As there is usually no vomiting or diarrhea water is the chief need. To bring out some of the important points in the study of water balance in the dehydrated patient a case report from the series of Walter Maddock is given:

B. L., a woman, aged 48 years, entered the surgical ward on March 29, 1935 complaining of abdominal pain and distention, and obstipation of 48 hrs. duration. Vomiting had occurred twice during that time. No food or fluid had been taken in the 30 hours previous to admission. The past history revealed a lower abdominal operation 12 years previously for intestinal obstruction. On May 26, 1934 a left pyelolithotomy and nephrostomy had been done for stones and on June 20, 1934 a right nephrectomy was performed for a calculous pyonephrosis.

On physical examination the patient appeared to be in moderate pain and was definitely dehydrated. Her lips were dry and her tongue showed only a slight amount of moisture at the edges. The abdomen was moderately distended, was tympanitic and tender in the lower half. On admission the leukocyte count was 19,000 per cubic millimeter of blood, and the hemoglobin was 10 4per cent (Sahli). No urine could be obtained on catheterization. The NPN was 61.2 mg. per 100 cc. of blood. The blood chlorides were 558 mg. per 100 cc. (plasma). A flat x-ray of the abdomen showed a distention of what appeared to be isolated loops of small bowel.

In view of the damaged remaining kidney, the dehydration, the oliguria the high value for the blood NPN, and the opinion that the obstruction was due to adhesions and was not strangulated, a decision was made to treat the obstruction conservatively for the time being. The patient was made comfortable with opiates. A Wangensteen duodenal suction apparatus was started and heat was applied to the abdomen. Intravenous fluids were given by W. G. M., who stayed in the room with the patient during the day. An assistant stayed in the room with the patient during the 12-hour night period. In this way the abdominal condition was closely followed and the water exchange accurately determined.

TABLE 6—Water Balance During Hydration of Patient B. L.

	3-29-35	3-30-35	3-31-35	4-1-35
Weight in grams of:	12 hrs.			
Intravenous fluid	3,977	3,912	6,565	4,915
Retained enema fluid	0	0	718	0
Water of oxidation	150	350	300	275
Preformed water	100	220	200	200
Urine	31	406	4,884	4,598
Sp. gr. of urine	1.020	1.013	1.011	1.006
Blood NPN, mg. 100c.c.	63.8	73.5	48.3	37.9
Stool	0	0	7	0
Blood	0	10	12	6
Sputum	0	0	30	0
Gastric drainage	161	306	120	0
Insensible loss	595	2,470	1,665	1,586
Max. mouth temp., of.	100.5	102.3	98.4	100.0
Total available water	4,227	4,482	7,783	5,390
Total water output	787	3,192	6,718	6,190
Water balance	3,440	1,290	1,065	—800

In this table it can be seen that on March 28, the intravenous administration of 3,977 c.c. of 5% dextrose in distilled water resulted in only a 31 c.c. output of urine. Where did the rest of the fluids go? The water balance figure (also the weight increase) showed that 3,440 c.c. were retained by the body to take care of the dehydration. The insensible loss was 595 c.c. so there was nothing left of the 3,977 c.c. for the kidney. On March 30, a 3,912 c.c. intravenous administration of 5% dextrose in water was largely used up by a water retention of 1,290 c.c. and an insensible loss of 2,470 c.c. (temperature 102.3°F., considerable sweating). The kidneys managed to put out 406 c.c. of urine, but only at a gravity of 1.013. From Table 3 the insufficiency of this urine output is apparent and as a result the blood NPN had increased to 73.5 mg. per cent. The circumstances of this patient—intestinal obstruction with only one kidney present and that one damaged by stones and infection—were ideal for the so-called toxic suppression of kidney function. Such was not the case. The figures for the insensible loss and water retained to overcome the dehydration showed how all the

fluid of March 29 and 30 had been used. More water was needed.

On March 31, the intravenous administration was stepped up to 6,565 c.c. Water retained and insensible loss were only 1,065 and 1,665 c.c. respectively. The result was a urine output close to 5,000 c.c. and the NPN came down to 48.3 mg. per cent. With a good urine volume on April 1 the NPN was normal. Water is the greatest diuretic, but, as Hugh Cabot has pointed out, this fact is frequently overlooked when the water is administered subcutaneously or intravenously.

IV. PARENTERAL FLUIDS. Up to this point amounts of fluids have been stressed. Now we will consider the kinds of fluids the patient needs. When water is given parenterally some dextrose should be given. It is fuel for energy and prevents or relieves ketosis and protects the liver. Each individual case must be considered. Sodium chloride is contraindicted in edematous patients, but if given in too large amounts may even cause an edema in other patients. In many cases, given fluids following extensive surgery or sepsis or both, a retention of water and post-operative edema resulted from the administration of 5% dextrose in saline and retention of water did not occur when the dextrose was given in water. If post-operative vomiting is present or if the Wangensteen suction is used normal saline is indicted. Certainly a controlled amount of normal saline solution will be beneficial in most of the cases. The normal intake of sodium chloride is about 5 or 6 grams a day, then with approximately 15 to 25 grams of salt which enters the body in 2,000-3,000 c.c. of normal saline, some edema can be expected and certainly trouble will result when indiscriminately used over too long a period of time. Post-operative pulmonary edema is probably more often caused by this than we think. Post-operative retention of water in the tissues as also very undesirable in stomach and intestinal surgery because the edema definitely decreases the size of the stoma and rapid healing is interferred with.

Gamble has pointed out that salt solution tends to be retained because it contains the substance required for rebuilding body fluid volume, it follows then that salt solution is most desirable in treating most cases of dehydration, bearing in mind, however, that most of the fluids following surgery are given with the purpose of adding water to the body and not treating dehydration. Unless there is considerable renal damage the kidney can be relied upon to excrete the excess of sodium or chloride ions. In many instances in general surgical patients studied by Maddock, 20% were found to be more or less dehydrated and were given dextrose in normal saline because of dehydration; the other 80% were given dextrose in distilled water purely with the purpose of adding water to the body.

When you consider that 25.5 grams of sodium chloride is given in 3,000 c.c. of normal saline or Ringer's solution one can readily see how excesses of salt are frequently given parenterally. On many surgical services in our well equipped hospitals only two solutions are usually available for parenteral administration, 5% dextrose in distilled water and Ringer's solution. One will be repaid if the needs of each individual patient is considered when ordering intravenous or subcutaneous fluids.

AMERICA AT WAR

CIVILIAN DEFENSE— EMERGENCY BASE HOSPITALS

The Medical Division of the U. S. Office of Civilian Defense, through its Regional Medical Officers and State Chiefs of Emergency Medical Service, has now made emergency provision for the establishment of a chain of Emergency Base Hospitals in the interior of all the coastal states. They will be activated only in the event of an enemy attack upon our coast which necessitates the evacuation of coastal hospitals. Each base hospital will be related to the casualty receiving hospital which has been evacuated and it is expected that the staff will be recruited largely from the parent institution.

In order to meet a sudden and unexpected crisis without delay, arrangements have been completed with state authorities for the prompt taking over of appropriate institutions in the interior of the state for this purpose and with local military establishments for the transportation of casualties and other hospitalized persons along appropriate lines of evacuation.

More than 150 hospitals in the coastal cities are in the process of organizing small affiliated units of physicians and surgeons, which will be prepared to staff the Emergency Base Hospitals if they should be needed. These units are composed of the older members of the staff and those with physical disabilities which render them ineligible for military service, and of women physicians. In order that a balanced professional team may be immediately available the doctors comprising units are being commissioned in the inactive Reserve of the U .S. Public Health Service so that, if called to duty, they may receive the rank, pay and allowances equivalent to that of an officer in the armed forces.

Dr. George Baehr, Chief Medical Officer of the U. S. Office of Civilian Defense, states that the members of these affiliated hospital units will continue to remain on an inactive status for the duration of the war, unless a serious enemy attack occurs in their region which necessitates the transfer of casualties to protected sites in the interior. Their commissions may be terminated upon their request six months after the end of the war, or sooner if approved by the Surgeon General. Such approval wlil be given in the event such officer desires active duty in the Army or Navy.

TABLE OF ORGANIZATION FOR USPHS-OCD AFFILIATED UNITS

Number Required	Position in Unit	USPHS Title	Equivalent Army Rank
1	Chief of Medical Services	Senior Surgeon*	Lieut. Col.
1	Asst Chief of Medical Services	Surgeon	Major
2	General Internists	Passed Asst. Surgeon or Surgeon	Captain or Major
1	Chief of Surgical Services	Senior Surgeon*	Lieut. Col.
1	Asst. Chief of Surgical Services	Surgeon	Major
2	General Surgeons**	Surgeon	Major
2	General Surgeons**	Passed Asst. Surgeon or Surgeon	Captain or Major
1	Orthopedic Surgeon	Surgeon	Major
1	Asst. Orthopedic Surgeon	Passed Asst. Surgeon or Surgeon	Captain or Major
1	Dental Surgeon	Passed Asst. Surgeon or Surgeon	Captain or Major
1	Pathologist	Passed Asst. Surgeon or Surgeon	Captain or Major
1	Radiologist	Passed Asst. Surgeon or Surgeon	Captain or Major
15			

*One of the two Senior Surgeons will be the Unit Director.

**In place of one or more of the general surgeons, a urological surgeon, thoracic surgeon, neurosurgeon, or plastic surgeon may be included.

DENTISTS IN TRAINING TO AID PHYSICIANS

Sixteen dentists in Flint, Michigan, are taking special training in Flint hospitals at the invitation of the Genesee County Medical Society to enable them to assist physicians by performing certain medical procedures, and thus to relieve the growing shortage of physicians created by the demands of military service.

The training will qualify the dentists in the following procedures: Obtaining blood for examinations, intravenous feeding, intramuscular injections, intravenous injections and obtaining blood from donors for blood banks.

Several of the number are already qualified in some of these fields and are assisting in clinics and with Selective Service examining board.

Colorado dentists are engaged in a similar program under the auspices of the Colorado State Dental Association and the Committee on Emergency Medical Service of the State Defense Council.

The plan was initiated by the presidents of the State Dental Association and of the Denver Dental Association, in cooperation with the board of trustees of the Colorado State Medical Society. Facilities of the University of Colorado School of Medicine and the Colorado General Hospital have been made available for the instruction.

A class of seventy dentists has finished a course of lectures on anesthesia, and small groups are now assigned to the hospital for practical training. It is planned that the dentists will return to the hospital at intervals for review after their training is completed. Preliminary lectures on shock and treatment of open wounds have also been presented.

Classes are being organized in maxillofacial surgery, oral surgery, serology, taking of blood for transfusion, and in the treatment of shock, hemorrhage and open wounds.

Dr. Ralph Christy, president of the state dental association, in a report to the Dental Preparedness Committee of the American Dental Association, emphasized the desire of dentists to assist the medical profession in an emergency, the willingness of physicians to give the necessary instruction and the importance of practical training in hospitals in addition to didactic lectures.

The Medical Division of the Office of Civilian Defense in April issued a statement recommending that dentists qualify themselves in First Aid, in order that they may act as instructors and as members of Emergency Medical Field Units in Casualty Stations and First

Aid Posts in the event of air raids; in the administration of anesthesia, and in the care of injuries of the face and jaws.

CHIEF OF GASOLINE RATIONING APPEALS TO PHYSICIANS OF U. S.

An open letter to all physicians of the United States from the chief of the Gasoline Rationing Branch, Office of Price Administration, concerning the vital role they will play in the rationing of gasoline and tires, is published in the Medicine and War section of *The Journal of the American Medical Association* for October 31. The letter is as follows:

"In the East Coast Gasoline Rationing program, made necessary by the shortage of transportation facilities for petroleum products, the indispensability of your profession was recognized by its inclusion in the categories of persons eligible for preferred mileage, that is, necessary occupational mileage in excess of 470 miles a month. Now the Office of Price Administration has been ordered by Mr. William Jeffers to institute and administer a nationwide mileage rationing program for the express purpose of conserving our rubber-borne transportation. In framing the Regulations for the new program, your profession was one of the first to be provided for.

"If we are to carry out our double task of preventing a collapse of our military and civilian transportation, we must have the complete cooperation of those groups of persons whose driving is deemed essential to the war effort. Our immediate aim is to attain the 5,000 mile national mileage average set by the Baruch Report as the maximum possible in light of the dire rubber shortage. Our experience with the East Coast program tells us that the preferred categories use one half of the gasoline consumed, though they constitute less than one fourth of the total number of automobile operators. Clearly, then, the great savings of rubber on a nationwide scale must be made in the preferred categories.

"Under the Regulations, governing the mileage rationing program, physicians are eligible for preferred mileage if their essential occupational needs exceed 470 miles a month and if the mileage is needed for regularly rendering necessary professional services. Mileage traveled daily or periodically between home or lodging and a fixed place of work is not considered preferred. Physicians who conduct their practices in offices, as many specialists do, are not eligible for preferred mileage.

"Without question or hesitation, doctors have been and will be granted all the gasoline needed to carry out their professional work. We hope that they will regard their concrete symbol of their indispensability, the C book, as a moral obligation and not as a personal privilege. From another point of view, the C book is part of a doctor's equipment; it should not be used for anything but the work of humanity.

"When nationwide gasoline rationing begins, there are certain concrete things a doctor can do to live up to the high ethical standards set for him by his own profession:

"1. At the time of first issuance of rations, he can so carefully compute his necessary mileage as to make a B book adequate for his purposes though he might easily make out a case for a C book, which might be granted to him without question by his local War Price and Rationing Board eager to provide for physicians.

"2. In the computation of his mileage, he can religiously adhere to the provision of the Regulations, which makes 150 miles of his basic ration available for occupational purposes. Moreover, he can help mightily in establishing the principles that only 90 miles of the basic ration are to be used for home necessary use and that there is no provision whatever in any ration for 'pleasure driving.'

"3. Conversely, if he should be granted a C book, he can return to the local board, at the end of the three months period, all unused coupons accruing to him as a result of a quite natural overestimation of needs or of overgenerous 'tailoring' by his board, instead of using such coupons for nonessential purposes. The moral effect of such an act on his fellow citizens will be incalculable.

"4. He can set an example by scrupulously observing the 35 mile speed limit, except in cases of emergency, in spite of the fact that doctors could easily 'get away with it.'

"5. Should he be assigned to a hosptial, clinic or institution after a ration card for calling on his private practice has been issued, he can use public means of transportation at the price of personal inconvenience.

"6. He can refrain from any kind of driving

whatever which might appear to be nonessential in the eyes of the public.

"Doctors are the leaders and molders of public opinion in their communities. If the average man has any reason to believe that the professional men whom he regards with great respect are indifferent or hostile to the mileage rationing program, it will be difficult, if not impossible, to make it effective. Conversely, if doctors as a group observe the letter and spirit of the Regulations, they will be a powerful force in making this absolutely mandatory war measure serve its purpose. We know that we can rely on the support of your profession, which has demonstrated its patriotism, ability and unselfishness at every opportunity.

JOHN R. RICHARDS,
"Chief Gasoline Rationing Branch, Office of Price Administration."

SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

NEW MEXICO MEDICAL SOCIETY

(L. B. Cohenour, Associate Editor)

The Councilors of the New Mexico Medical Society have decided that the State Meeting will be discontinued for the duration, due to the difficulty in traveling and the probable difficulty in securing speakers, according to L. B. Cohenour, M. D., Secretary of the Society.

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

(W. John Pangman, Associate Editor)

A meeting of the City-County Hospital Staff was held Wednesday, October 21, 1942, at 6:30 p. m., at City-County Hospital. The program: Case of spinal injury.

Dr. A. P. Black was awarded the Sir Henry Welcome prize on November 6, 1942, at the annual session of the Association of Military Surgeons of the United States, meeting in San Antonio, November 5-6-7.

The prize, won in competition with a large number of other contestants, consists of a cash award of $500, the Sir Henry Welcome gold medal and publication of the prize winning essay in the Military Surgeon, official journal of the association.

The title of Dr. Black's essay was "Measures of Preventive Medicine Recommended by the Federal Medical Services to Insure the Maximum Improvement of the Selectee of 1961 Over Him of 1941."

Dr. W. John Pangman was recently notified that he has passed the examinations of the American Board of Plastic Surgery and is to be certified by that body.

Dr. M. P. Spearman was elected to Fellowship in the American Academy of Ophthalmology and Otolaryngology at its session in Chicago in October.

The staff of Wm. Beaumont General Hospital entertained the El Paso County Society on Tuesday, November 3, 1942. At 7:00 p. m. dinner was served in patients' mess hall. The program follows:

1. Introduction, Colonel George M. Edwards.
2. Presentation of battle casualties, Major John G. Manning and Major William H. Frackelton.
3. Demonstration of stethocardiette and orthodiascope with general discussion of cardiac surveys, Major George P. Denny and others.

ARIZONA STATE MEDICAL ASSOCIATION

(J. D. Hamer, Associate Editor)

The staff of Good Samaritan Hospital, Phoenix, met October 26, 1942. The program:

1. Opening remarks by Chief of Staff H. G. Williams, M. D.

2. Minutes of September meeting, Ben P. Frissell, M. D.

3. Old and new business.

Scientific program:

1. Hospital statistics, J. N. Ross, M. D.

2. Empyema of gallbladder, W. G. Furth, M. D. Discussion, general.

3. Case of eclampsia, F. C. Jordan, M. D. Discussion, L. C. McKay, M. D.

A meeting of the staff of St. Joseph's hospital, Phoenix, was held on October 12, 1942, at 8:00 p. m.

The clinical program, under the chairmanship of Dr. Robt. Stevens:

1. Statistical report for the month of September, Dr. Lucy Vernetti.

2. Case No. 62,005, functional death, summary, Dr. John Schutter. Discussed by Dr. Louis Baldwin.

3. Case survey of coronary occlusion, for the year 1941, Dr. George Barfoot. Discussion opened by Dr. Ben Pat Frissel.

A regular staff meeting of St. Joseph's Hospital, Phoenix, was held on September 14, 1942, at 8:00 p. m.

A review of the deaths for the month of August was presented by Dr. John M. Schutter.

The clinical program was as follows:

I. **The Use of Sodium Pentothal in Thoracic Surgery.**

Presented jointly by Dr. Howell Randolph and Leslie R. Kober.

II. The Case of Fracture of the Skull.

Presented by Dr. Lucy Vernetti.

Discussed by Dr. E. Payne Palmer, Sr.

III. Summary of Skull Fracture Cases in the Hospital Since January 1.

Presented by Dr. Norman D. Hall.

MISCELLANY

ELECTRONIC "EYE" TO MEASURE U. S. SUNFALL

Sensitive new electronic "eyes" developed by Westinghouse engineers to see and record invisible ultraviolet rays in sunshine will soon begin their first daily measurements of "sunfall" in the United States to study its effect on the wartime health of the nation.

The new sun measuring instruments eventually will operate in 20 of the world's first solar observation posts to be set up for a nationwide ultraviolet study by the United States Weather Bureau. Located in Weather Bureau stations, the observation posts will be scattered over a 1,000 mile stretch of land running from Texas northward through the Mississippi Valley to the colder regions of the midwest.

First sun metering will get under way soon in New York City and in Boston and Cambridge, Mass., to record the amount of ultraviolet which penetrates through the haze of big metropolitan centers. These figures may eventually make it possible to forecast for several days in advance the intensity of sunfall over a city, Weather Bureau officials believe.

Med. Times.

DEMAGOGY IN MEDICINE

Recently it was in the news that a member of the National House of Representatives hailing from New York had introduced a bill providing for the formation of a number of "Medical West Points". That is, there would be built in various portions of the country by the Federal Government great medical schools, with the funds illimitable and never ending that pour out of Washington, making them the most supercolossal exponents of the healing art that have yet been seen.

We believe that one point that the statesman from the Bronx (or some nearby district) stressed particularly was the democratic nature which these places would possess, contrary to the already established medical schools. This undemocratic spirit and another charge frequently brought against us would seem to be self contradictory:

Charge one—We are snobbish and cliquey. We don't want the poor boy or members of vari-

ous racial groups in our guild. But we all know many a good doctor who had to go threadbare until he was established and earning a modest income, and as to racial groups—study the recent membership lists of our societies and pick out the discriminated against groups if you can.

Charge two—We are ridiculous in our unity. Those seeking to make legal troubles for doctors have great difficulty in getting other members of the profession to turn against their fellow practitioners. The facts are of course that we are a cross section of the community but in our ranks there is developed in the best sense of the word a class consciousness and what we are sure is a rather remarkable fellow esteem and helpfulness.—The writer's own class in a school frequently accused as the most snobbish of all ranged from millionaires through men of numerous racial strains, many working their way. And the friendly relations among these, all absorbed in their common interest in medicine, was delightful.

Undoubtedly our statesman intends to ensure medical democracy by the choosing of the pupils attending these governmental schools. We have understood that admission to West Point was largely through appointment by congressmen. Perhaps this has worked well with our fighting men. Policies and warfare are both rough, tough games. But a reading of history will convince any one that our commanders in chief have always been handicapped in their campaigns by the necessities of political considerations. And does any one believe that our congressmen as a group do not overemphasize policies? Compare this with the elaborate methods used by our great medical schools to learn the records and aptitudes of candidates and their constant competition to get the brilliant men who will shed lustre on their institutions.

There has been a feeling among some able educators that the methods at West Point left something to be desired. Tradition has played too strong a part. Apparently it was this traditional attitude that forced our medical officers in the last war to wear a tight Prussionized coat without room in the pockets to carry a stethoscope so patients frequently were not auscultated when they should have been. Armies of other countries had big roomy patch pockets. Even in such a remote manner as this war medicine adversely affected by the misapplied martial spirit.

Passing fads and fancies play a small part in real medicine and we are invariably accused in the public press of narrow-mindedness and ultra-conservatism when we do not adopt each new panacea. The populace forget the avidity with which we have seized upon such things as insulin, liver therapy and the sulfa drugs, when these really worthy agents have appeared.

Osteopathy and chiropractic maintain strong lobbies, have vociferous proponents among our legislators and if they have not appointments in our armed forces they have at least obtained recognition in Defense organizations. When our medical schools are controlled in the National capitol presumably such strongly organized bodies will be able to introduce courses in these subjects despite the firm belief of scientific men in their fallacy.

Such things will be found to occur if government medical schools are established. As Professor William B. Munro says, "For, whatever may be hoped to the contrary, federal aid will invariably lead to federal guidance discipline, restraint and control. Those who hold the purse will wield the power." When a Huey Long lavishes governmental funds on a school he will attempt to debauch it.—R. I. Med. J.

GUILLOTIN, GATLING, AND ROCKWELL

The fact that the names of three physicians are historically identified with death-dealing devices might easily give rise to a wrong impression. They were all humane men and fully entitled to membership in a profession whose traditional object is the prolonging of life and the mitigation of suffering. Indeed it is the last named attribute which stimulated their interest in the devices mentioned.

Joseph Ignace Guillotin was a highly respected practioner of medicine at the time of the French Revolution. He deplored the clumsiness and inefficiency of the gibbet and was instrumental in having the decapitating appliance which was later given his name substituted. He never had anything to do with its invention or improvement. Its original use is ascribed to the Persians; after the 13th century it was used in Italy, where members of the nobility who were condemned to death had the privilege of choosing it as a method of execution if they preferred it to more plebeian technic. The Germans used it in the Middle Ages, we are told, and in Scot-

land a similar device was employed with the euphemistic title of "maiden" in the 18th century. So Dr. Guillotin merely was the champion of what he believed to be the most merciful way of inflicting the death penalty, by an old established and well tried method.

Richard Jordan Gatling, M. D., received his degree from the Ohio Medical College in 1850 but never practiced. He was a mechanical genius and turned his talents to useful inventions among which were a steam plow and a hemp breaking machine. Shocked by the inconclusiveness of the warfare of his day he conceived the idea of producing a weapon so deadly that it would speedily bring organized combat to an end. Thus he invented the revolving, rapid fire gun which bore his name; the crude forerunner of the modern machine gun, deadliest of all weapons. Gatling died in 1903 at the age of 85, happy in the thought that he had brought lasting benefit to humanity.

A. D. Rockwell, M. D., was a pioneer in electrotherapeutics, to the literature of which he made many important contributions. When the State of New York officially adoped electrocution for capital punishment it was Rockwell who was employed to apply his knowledge and ability to make it quickly and painlessly effective. The "electric chair" of today is practically as he perfected it. As in the other instances he was actuated by only the best of humane motives.—*Journal Lancet.*

AN ELOQUENT SERMON

The number of physicians on extended active duty and the figures on the 1942 quotas, as of September 1, are now available from the Procurement and Assignment Service. The latter furnish interesting and disturbing data, particularly concerning some of the New England states. The state providing the lowest percentage of its quota of physicians for 1942 is Nevada, which has obtained but 56 per cent. The second lowest is Illinois, in which the figure is 63 per cent. The next two lowest are Connecticut and New York, each having supplied but 64 per cent of their quotas. For Massachusetts, the figure is 67 per cent; for New Hampshire, 79 per cent; for Vermont, 82 per cent; for Rhode Island, 84 per cent; and for Maine, 99 per cent.

For a community spoken of as the "Cradle of Liberty," Massachusetts hardly shows to advantage in this picture when compared with such states as New Mexico with 205 per cent of its total quota; Louisiana, with 196 per cent; Alabama, with 179 per cent; South Carolina, with 160 per cent; Kentucky, with 159 per cent, and North Carolina, with 151 per cent. Twenty-six states in the Union have supplied above 100 per cent of their quotas. When one realizes that Massachusetts stands fifth from the bottom, only four other states, Nevada, Illinois, Connecticut and New York, having lower percentages, then it can be said that these figures preach an eloquent sermon.—*N. E. J. of Med.*

TREATMENT OF WHOOPING COUGH

Belladonna reduces the spasms in pertussis. Children tolerate belladonna well. The initial dose should be from 2½ to 5 minims (0.166 to 0.333 cc.) of the tincture three or four times daily. This dose should be rapidly increased until the patient is taking from 10 to 15 minims (0.65 to 1.0 cc.) in each dose, according to its age.

The following prescription is useful:

R Tr. belladonnae m iij to xx (0.2 to 1.3 cc.)

Tr. camph co.	m v	(0.325 cc.)
Sod. brom.	gr. ij	(0.15 Gm.)
Syrup tolu.	q.s.	
Aq. chlorof ad.	dr. i	(4.0 cc.)

Sig.: One dose.

Progress should be judged by keeping a careful daily record of the number of paroxysms.—*Medical Bulletin.*

MEDICAL WITNESS

And now as concerns the physicians' contact with the courts: namely, the expert witness. The matter of expert testifying in court is not the ordeal pictured by some people who have occupied the witness stand and who are quoted repeatedly in the literature of medico-legal relations. There is a natural dread of the witness chair similar to the fears of a small boy who is about to speak his part and is afraid he will forget an important line. Anxiety as to one's ability to think clearly and express himself likewise is justified in any such situation. It is time-consuming and renumeration is only fair. It is somewhat of a duty but not a task. It should be remembered as one chides the flustered witness, that very few persons in the court room, spectators, jurors, attaches or attorneys could face calmly situations which are daily occurrences

to the physicians. Mark Twain once said "There is no display of human ingenuity, wit and power so fascinating as that made by trained lawyers in an important case. Nowhere is there such an exhibition of subtlety, acumen, address or eloquence". The good trial lawyer is an artist at cross-examination and plans his attack with corresponding cunning. The witness who has been candid and truthful may expect from him straightforward questions but if he has not been truthful, has unintentionally or otherwise given the impression of prejudice or bias, he may expect a barrage that will tend to discredit not only the testimony but the witness himself.

Criticism and prejudice of the expert witness is frequently heard. Honorable John M. Gallagher, Chief Justice of the Supreme Court of Minnesota, believes that one cause for prejudice has arisen against the testimony of the physician as the result of difference of opinions of experts in mental cases. He points out that they occur in important will cases and in criminal cases under the plea of insanity and are traceable to the difference between legal and medical concepts of insanity. He explains that in law, insanity implies inability to recognize wrongfulness of an act and is based on outmoded mental science and psychology. He says that to the physician and psychologist mental derangement may be entirely unconnected with any responsibility. The psychology which expresses itself in criminality seems the very embodiment of irresponsibility to the physician and yet in law the criminal is held responsible. Be that as it may, difference in opinion by physicians is not more frequent than among other experts. To be sure, the difference of opinion and interpretation forms the basis of most questions submitted to litigation.

Another frequent criticism of the physician's testimony is facetiously referred to as consisting of a jargon of technical phraseology which is unintelligible to the judge and jury. I found with some amusement, in a brief review of the literature concerning the expert witness, a short poem referred to again and again wherein a black eye was described as "an integumental contusion with adjacent ecchymosis of orbital tissue."

Medicine possesses its own literature and language and the most natural tendency is for the physician to lapse into technical phraseology particularly when encouraged by the attorney who can at least engage in medical phraseology to a knee depth. Frequently it is forgotten by both witness and attorney that the matter of their discussion is for the benefit of the judge or the jury and a dialogue ensues—a dialogue not too enlightening to a jury who have become casual listeners.

It is my belief that medical testimony too frequently is characterized by an attitude on the part of the medical winess that he is making a record, because of the presence of the court reporter, and he visualizes his answers to counsel's questions being critically read by a jury of physicians. In other words, he feels as though he were writing a book or scientific article for publication. But all responsibility for language and terminology does not rest with the doctor. Unfortunately, the doctor must answer the quesions only. Springstun in his book "Doctors and Juries" says that testifying in court is a good deal like playing golf. If the doctor takes a good stance, keeps his eye on the ball, uses a good swing and follows through, he gets along pretty well. The simple dignified swing without exaggeration or added flourishes always gets the best results.

Lawyers complain about and criticise the expert medical witness, no doubt justly, but physicians have complaints also. Physicians as a class object to the hypothetical question as a technical problem to be twisted at will by the interrogating attorney but all to frequently so involved as to be beyond the comprehension, in all or even most of its details, to the witness himself and surely, we believe, to the lay members of the jury. Lawyers recognize the disadvantage of the hypothetical question. Professor Wigmore, quoted to the writer as pre-eminent on matters of evidence, says: "The hypothetical question must go as a requirement. Its abuses have been so obstructive and nauseous that no remedy short of extirpation will suffice, the hypothetical question is mis-used by the clumsy and abused by the clever, has in practice led to intolerable obstruction of the truth."

We have another complaint. The physician resents the legal phraseology found in the petition. He is embarrassed when he reads the petition of his own patient describing common-place bodily injuries with which he deals daily, so dressed up in legal phraseology and so exaggerated in compliance with legal technical detail as to be hardly recognizable. Why not write

Milestones in Medical History

5
1939

THE *Baxter* PLASMA-VAC

FOR THE PREPARATION AND STORAGE OF PLASMA

The Safety of Vacuum Protection . . . .
has been applied by Baxter Laboratories to the vital problem of the aseptic preparation of plasma and its preservation indefinitely until needed ✱ Employing a mechanically induced vacuum—as do all Baxter containers—the Plasma-Vac has the maximum protection which that method of aseptic control alone can provide. It is adaptable to the storage of plasma in either the liquid or frozen state ✱ Baxter Plasma-Vacs may be secured in a complete range of sizes—250 cc, 500 cc, 1000 cc, 2000 cc—and the 500 cc container is available also with either sodium chloride or dextrose for the preparation of dilute plasma ✱ The Plasma-Vac combines Baxter safety factors with Baxter's easy simplified technique.

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a petition like an insurance policy, with standard provisions in small type to cover all possible surprises and then a written part that reads more sensibly? Furthermore why do most injuries become complicated by sacroiliac sprain when suit is filed?—*J. Kansas M. Soc.*

PUBLIC HEALTH NURSES NEEDED

The U. S. Civil Service Commission recently issued a call to Public Health Nurses through the pages of this journal. The Commission has now asked that we print a correction regarding a statement made in their press release regarding the omission of high school education as a requirement for Public Health Nurse positions. This statement was made in error by the Commission. In effect the educational requirements for Public Health Nurse cannot be obtained without completion of high school education.

The Public Health Nurse positions pay $2,000 a year. The requirements are: Completion, subsequent to January 1, 1920, of a full course in a recognized school of nursing including 2 years in a general hospital having a daily average of 50 bed patients or more; registration as a graduate nurse; and completion of one year of study in public health nursing at a college giving a course of study approved by the National Organization for Public Health Nursing. One year of public health nursing experience is also necessary.

Other nursing opportunities open in the Federal service include the following: Junior Public Health Nurse, $1,800 a year; Graduate Nurse, $1,800 a year; Junior Graduate Nurse, $1,620; Graduate Nurse for the Panama Canal service, $168.75 a month; Nursing Education Consultant, $2,600 to $5,600 a year.

Except for Panama Canal service there are no age limits for any of these positions. Applications will be accepted at the Commission's Washington office until the needs of the service have been met.

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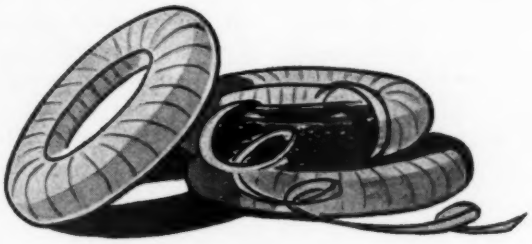

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* *Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154*
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BOOK NOTES

L. O. DUTTON, M. D.
(Book Review Editor)
Mills Bldg., El Paso, Texas

CLINICAL ANESTHESIA: By John S. Lundy, B. A., M. D., Head of Section on Anesthesia, Mayo Clinic; Professor of Anesthesia, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota; Diplomate and Member of the American Board of Anesthesiology, Inc.; Member of the Subcommittee on Anesthesia, National Research Council. 771 pages with 226 illustrations. Philadelphia and London: W. B. Saunders Company, 1942. Price $9.00.

Excellent, well written and just what has been needed for quite some time, timely indeed. The work is quite unique in its clinical depiction. It is most outstanding in its effort to treat with the clinical phase of anesthesia and its agents and at the same time does not lose sight of the importance of details of tecnique in the administration of the now many elements and instruments employed in this rapidly progressing art. Doctor Lundy treats each subject almost in colloquial manner, as it were discussing his wealth of individual experiences, which makes his book intensely readable, quite as a romance of a very interesting endeavor. Concurrently, there is thoroughness and completeness in its every detail. The surgeon's library as well as that of the anesthetist will be that much incomplete without a volume of this excellent work upon its shelves. And withal, a closer relationship between surgeon and this integreal member of his team, his anesthetist, can be more generally brought into being, so essential to the best of work. The volume contains 735 pages, a well arranged index, and is fully illustrated. It will be enjoyed and valued by all interested in the theory and practice of anesthesia. *—Frank O. Barrett, M. D.*

FOOD CHARTS: FOODS AS SOURCES OF THE DIETARY ESSENTIALS, prepared by a joint Committee of the Council on Foods and Nutrition of the American Medical Association and of the Food and Nutrition Board of the National Research Council. Paper. Price 10 cents. (Quantity prices on request.) Pp. 20. American Medical Association, Chicago, 1942.

A presentation of some facts about foods as sources of the dietary essentials is provided by the present illustrated essay. There are eight charts showing the contribution that individual foods may make with respect to the needs for protein, calcium, iron, vitamin A, thiamine, riboflavin, nicotinic acid, and ascorbic acid. The values are presented in terms of the daily requirements which are supplied by typical servings of each food. The requirements selected are the Recommended Daily Allowances of the Food and Nutrition Board of the National Research Council. There is a descriptive paragraph or two about each of the charts. In addition the booklet reproduces the table of Recommended Dietary Allowances and also provides the values of Minimum Dietary Requirements developed by the Food and Drug Administration for purposes of labeling special dietary foods.

WAR MEDICINE. A symposium. Winfield Scott Pugh, M. D., Editor; Commander (M.C.) U.S.N. Retired; formerly Surgeon, City Hospital, New York City; Associate Editor, Edward Podolsky, M.D.; Technical Editor, Dagobert D. Runes Ph.D. 565 pages. Illus. Price, $7.50, cloth. New York; Philosophical Library, Inc., 15 E., 40thSt., 1942.

Much of this book seems to be written for the last World War. Laudable in conception of its aims, the result falls short of the mark. This is essentially a compilation of various articles published in the medical periodicals, and lacks unity and cohesion. Individually, many of the papers are sound, but as a whole, they just do not lend

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CONTINUOUS CAUDAL ANESTHESIA IN OBSTETRICS

A new method for continuous or fractional caudal anesthesia has been developed by Edwards and Hingson (Am. J. Surg., 57:459 (September, 1942). It appears to be remarkably effective and yet retains the complete cooperation of the patient There has been uniform absence of delerium, narcosis, cyanosis, nausea, vomiting, and anoxemia, and no interference with uterine contractions. Every infant in the authors' series breathed spontaneously except one stillborn known to have been dead several days before delivery.

The technic consists in the injection of an initial dose of 30 cc. of 1½ per cent solution of "Metycaine" (Gamma-(2-methyl-piperidino)-propyl Benzoate Hydrochloride, Lilly) followed at thirty or forty minute intervals with 20 cc. of the ½ per cent solution. In every case there has been complete freedom of pain and discomfort of active labor within five minutes following the initial dose. Episiotomy and outlet forceps, and repair of the episiotomy has been without pain. The average duration of anesthesia has ranged from four and three-quarters to thirteen hours.

One patient described was having eclamptic convulsions when admitted, with blood pressure 220/110. After the initial dose of "Mytecaine" was given, the pressure declined to 140/90 and the clinical picture improved remarkably. The anesthetic was continued throughout the day without the blood pressure exceeding 150. She delivered a healthy baby spontaneously thirteen hours after the initial dose.

AGAR AND THE WAR

The war has cut off importations of agar-agar, which normally come from Japan. The War Production Board has frozen all stocks of agar in order to protect the requirements for bacteriologic culture medium use of the Army, Navy and civilian hospitals and laboratories.

This W. P. B. control of agar stocks made it necessary for Mead Johnson & Company to discontinue the manufacture of "Pectin-Agar in Dextri-Maltose," a product which has been used

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VITAMIN FILMS IN COLOR

During the past year the three 16-mm. silent motion pictures in color, describing certain vitamin deficiency diseases, which were made available by Eli Lilly and Company, Indianapolis, for showing before medical groups under sponsorship of a physician, have been in continuous demand. One film deals with deficiency of thiamine chloride (beriberi), another with nicotinic acid deficiency (pellagra), and the third with ariboflavinosis. To meet increasingly frequent demands for the films, additional new prints have been placed in circulation and are now ready for loan. The major part of all films concerns the clinical picture presented by the patient with reference to treatment by diet and specific medication. They do not contain advertising of any description, nor is the name of Eli Lilly and Company mentioned.

The films were made at the Nutrition Clinic of the University of Cincinnati at the Hillman Hospital, Birmingham, Alabama, where studies were initiated in 1935, under the joint auspices of the Department of Internal Medicine of the University of Cincinnati and the University Hospitals of Cleveland. Subsequently, these investigations became a co-operative project between the Departments of Medicine of the University of Cincinnati and the University of Alabama, and the Department of Preventive Medicine and Public Health of the University of Texas.

EXIGENCY OF WAR

Oleum Percomorphum 50% is now known as Oleum Percomorphum 50% With Viosterol. The potency remains the same; namely, 60,000 vitamin A units and 8,500 vitamin D units per gram. It consists of the liver oils of percomorph fishes, viosterol, and fish liver oils, a source of vitamins A and D in which not less than 50% of the vitamin content is derived from the liver oils of percomorph fishes (principally Xiphias gladius, Pneumatophorus diego, Thunnus thynnus, Stereolepis gigas, and closely allied species.) MEAD JOHNSON & CO., Evansville, Ind., U.S.A.

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Destruction of barracks at Wheeler Field, T. H., December 7, 1941. Photo by U. S. Army Signal Corps.

Lessons from Pearl Harbor

OUT of the chaos and confusion—the burns, lacerated wounds and compound fractures—that was Pearl Harbor on that first Sunday of December, 1941 — have come many lessons. Not the least among them is the value of the sulfonamides—used topically for the management of the potentially infected traumata.

Field conditions were ideal for the production of Clostridial infections—yet the incidence of gas gangrene was remarkably low and resulted in no deaths. Hospital facilities and surgical skill were hard-pressed and surgical operations were delayed from hours to days. Due in no small measure to the use of the sulfonamides, postoperative mortality was only 3.8 per cent, and most of these fatalities were from shock and hemorrhage.

Topical use of sulfonamides is assuming increasing importance not alone in military practice but in industry and civil life. These compounds should be regarded as an important adjunct to surgery, regardless of whether the surgeon is dealing with grossly contaminated wounds or maintaining asepsis in his operative field. Further studies must, of course, be made to determine the method of application best suited for each type of wound.

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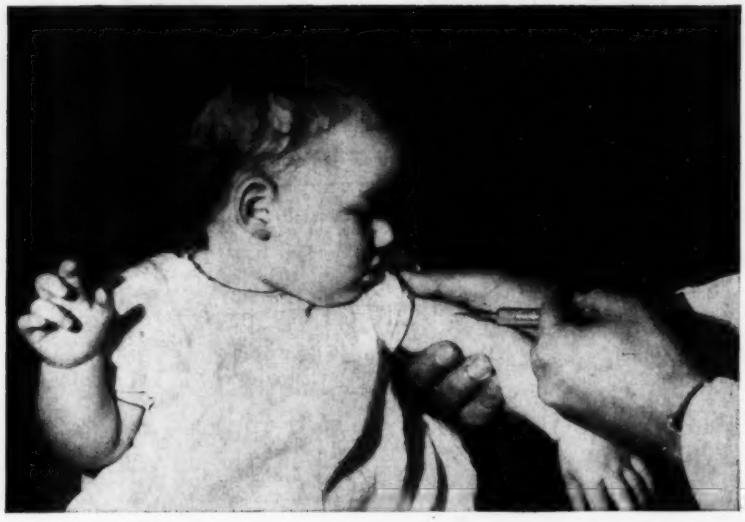

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